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ABSTRACT

As a minority, women experience stress because of their gender when they enter the male-dominated profession of science. A review of the coping strategies used by women in dealing with the psychologically stressful situations of choosing a career in science is presented in this paper. This study is based on interviews with four women trained in traditionally male-dominated sciences and who are presently working at universities. They include an examination of the approaches used in responding to: (1) selection of career and life choices; (2) handling evaluations of worth; (3) dealing with discrimination and job conflicts; and (4) dealing with role conflicts in a dual-career marriage. Some of the coping strategies include having a positive self image, discounting negative evaluations, and postponing and/or sharing child rearing. Following the case studies are discussions and analyses of the life stresses and coping strategies employed by the women scientists. Profiles of women who choose nontraditional careers are also included. (ML)

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Strategies for Coping with Stress:
Case Histories of Four Women Scientists

As a minority, women experience stress because of their gender when they enter the male-dominated profession of science. Traditionally, women tend to hold less-visible and less-powerful positions in academic science than do their male counterparts. Case studies of four women scientists currently working in universities indicate that they never experienced discrimination until they sought jobs in academia. These women had few if any female role models; however, they usually had highly supportive male mentors, which did not prepare them for the problems they subsequently faced when they sought jobs or promotions at universities.

Their coping strategies for dealing with job-related stress include having a positive self-image, feeling in control of their lives, discounting negative evaluations from people they don't respect, seeking approval and satisfaction from communities outside the university, postponing childrearing, and sharing childrearing and household responsibilities with a spouse.

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Strategies for Coping with Stress: Case Histories of Four Women Scientists

by LaRae M. Donnellan © 1984

Women have been scientists for centuries, although their presence often has been--and still is--obscured or downplayed (Mozans, 1974; Rossiter, 1982). They tend to hold entry-level or associate positions rather than be senior scientists (Rossiter, 1982; Cole, 1981). For example, the women who work in high-energy particle physics laboratories tend to be lab assistants or liaison physicists (glorified tour guides) rather than senior physicists (Traweek, 1984).

Many reasons have been suggested for why women might not make it to the upper levels of the scientific community. Thomas (1980) identified several personal-social barriers that a woman may confront when she considers a nontraditional career. These include being anxious about taking a "man's place"; putting family responsibilities before career needs (e.g., following her husband to his jobs, feeling unable to leave home for her own training); being afraid of failing (thus losing self-esteem) or succeeding (thus losing male campanionship); and not feeling competent as a professional. Or a woman may experience real discrimination because of her gender.

The purpose of this paper is to examine various coping strategies used by four female scientists to deal with psychologically (as opposed to physically) stressful situations they face as a result of choosing a career in science.

Psychologically stressful situations, for the purposes of this paper, are those that a person perceives as threatening or changing her status quo. The greatest sources of psychological stress are changes in life activities (e.g., career, family), evaluations of worth, and conflicting expectations (Valdez, 1982; Lazarus, 1966; Bebbington, 1973). To be sure, everyone experiences stress; it's natural and universal (Nelson and Nelson, 1981). But the question is, how do women scientists cope with stress brought about by the fact that they are minorities in a male-dominated field?

By coping skills, I am referring to the way a person perceives a stressful situation and the efforts she makes to meet or respond to anticipated or actual threats or changes in her life. For example, coping strategies might include restoring one's self-esteem by redoubling efforts to learn a task (Lazarus, 1966) or perceiving an event as being controllable and thus less stressful (Suls and Mullen, 1981; Schill, Adams, and Ramanaiah, 1982).

Subjects

This study is based on interviews with four women trained in traditionally male-dominated sciences and who are presently working at universities. These four case studies are intended to highlight how these women have coped with stressful situations in their nontraditional careers. To maintain their anonymity, I have changed their names and certain aspects of their work and life; however, each is a single person, not a composite. Each tells her own story,

and all quoted material is taken, unchanged, from taped interviews.

Procedure

Through extensive interviews with the scientists, I examined how each responded to the following potentially stressful situations:

- making career and life choices;
- handling evaluations of worth;
- dealing with conflicting expectations, discrimination, and conflicts on the job; and
- dealing with role conflict in a dual-career marriage.

These situations do not occur independently of one another; indeed, they are closely connected.

An analysis of some of their life stresses and the coping strategies they use follows the case studies.

THE CASE STUDIES

Loretta Murphy, geologist

When Loretta Murphy, 32, entered graduate school, she recalls, "My advisor told me that I should be arrogant as hell because I was brighter than most people on the face of the earth. That was the first time I'd ever heard that," she says.

"It was something that I really needed at that point, because I wasn't sure of myself and I think if I had had a major professor who came down on me really hard, I might not

have finished the program. It's hard to say now, but it was a positive experience," she continues.

About a third of her classmates in graduate school were women, but she perceives her experiences as having been different from theirs. "Most of the women had real severe motivational problems," she says. "They had absolutely no self-confidence at all. This was true of the graduate students during my post-doc, too. They all thought of me as a strong-willed, stubborn-type person, but I didn't see myself particularly that way at all."

Unlike some of her classmates, Loretta says she was willing to make sacrifices in her personal life to become a scientist. "My parents always told us kids [she was one of 13] we could do whatever we wanted," she says. "They expected academic and intellectual achievement from the boys and the girls."

Her support group in college consisted of the women graduate students and two women faculty in her program. "It really opened my eyes to some of the concerns that other women had that never even occurred to me...to worry about interactions with male colleagues, sexual innuendos, that sort of stuff. I was just in a lab where that kind of problem didn't crop up," she says.

Few women go into her geological specialty, she says, for two reasons: the heavy emphasis on mathematical modeling and the danger of having to do fieldwork. "I know several women who have been raped while they've been out doing their fieldwork or who have had serious problems. That's some-

thing that men never worry about; it never even occurs to them to think about it," she says.

"Occasionally while out in the field I think, what if some weirdo were all of a sudden to show up," she says, "but I don't dwell on it. There's not much I can do about it."

It wasn't until her post-doc that she "found out what being among the first-rate, the elite of the scientists really is all about." Whereas she had been "close to the top of the heap" in her Ph.D. program, she was "no longer the brightest or hardest worker." Others were bright and hard-working; too hardworking in some cases, she thinks.

Loretta reevaluated her career goals, how hard she wanted to work, and what she wanted for herself during that post-doc experience. "I decided I wanted to be in a place where there were good undergraduate and graduate students. I didn't want to get stuck away at a four-year liberal arts school and teach five courses a semester. I wanted to do research, but I didn't want to be in a megapressure cooker like Harvard or Stanford or Berkeley," she says.

Although she chose not to follow the route that the "first-rate, the elite" of her colleagues have chosen, she sees herself as a successful, hard-working scientist who is in control of her destiny, unlike some of her colleagues at the more prestigious universities.

Loretta says that she hadn't experienced discrimination until she was hired as the first tenure-track woman in a science position at her university's college of arts and sciences. She says she was hired "despite the fact that [she] was a woman" because the department wanted to hire a

man who had published a book and had come from Harvard, "you know, just really had credentials coming out the kazoo." He was offered the position but turned it down. Thus, Loretta got the job.

How does she feel about being second choice? "Absolutely no problem. I have a job and I'm a lot luckier than many, many of my colleagues out there still hunting."

And she feels fortunate about another aspect of her job: she now shares her tenure-track position with her new husband, Bill, with whom she had been involved for the past eight years. They waited to get married--and to have a child--until they had job stability.

Bill followed Loretta to her job and brought his research money with him. After three years, his grant money was going to be cut off unless he got a tenure-track position.

"So, it was clear that something had to change; either we had to leave, or something had to change here. At about this same time, my research program took a real turn for the better. I got my first major grant from the National Science Foundation and my teaching evaluations were all coming in positive and everything. So, we finally had some bargaining position with the university," she says.

Her department voted against the proposal, but her chairman, dean, and eventually the administrative vice president (with strong encouragement from the Affirmative Action Officer) approved the idea of splitting the tenure-track position in two.

"We just love it; it's a terrific arrangement. I teach in the fall semester; Bill teaches in the spring. I can do research all spring; he can do research all fall. We supplement our teaching income with our research grants. I think that we're the envy of some of our colleagues," she says. "But there was just no other way we could stay," she adds.

Having this split appointment has provided her and Bill with the time to start raising a family. Their first child, a girl, was born at the beginning of spring semester, just as Loretta was to begin her research time.

"I'm not getting as much work done as I used to," she says, while holding her sleeping baby in her lap. "We had hoped she could stay in the lab with me until September, but now we realize we were living in a fool's paradise. Besides, I need the summer to do my fieldwork. And so we're on the waiting lists to get her into daycare fairly soon."

The only time Loretta doubted her decision to become a scientist was when she and Bill were trying to decide what to do about jobs. "Each person in a dual-career couple has to ask, how strongly am I committed to my career? Won't something else be just as satisfying? At one point I was thinking very seriously about quitting science and going into business school or something like that.

"But since I've been here, and since things have worked out, I really love what I'm doing. I love my job. I like it here. I'm one of the lucky ones, I know that," she says.

Loretta was the first of what she calls the "new breed" of seven junior faculty members, all hired within the last five years. "My department chair is fantastic. He led me

to believe, and he has kept all of his promises so far, that he would listen to me as a junior faculty member. He wouldn't be dictated to by me, by any means; but on the other hand, he would take my opinions very seriously because he was interested in turning the department around. And he's absolutely stood by that," she says.

The junior faculty members (who include the only other woman on the faculty) have been very supportive of her, she says, and they talk to one another about science. However, they can't yet vote on promotion and reappointment matters. What she calls the "Old Guard" of senior faculty members voted against her request for a split tenure-track position and against her bid for reappointment.

"There were no coherent reasons given [for turning down her reappointment request]. But two of my colleagues at that meeting said they personally felt that it had something to do with my sex chromosomes," she says.

Her department chair "vehemently disagreed" with his senior faculty and overruled their decision. Eventually, she got reappointed. She comes up for tenure review next year, and although she thinks she may have some difficulty, she's convinced she'll get tenure.

"Basically," she adds, "[the senior faculty] are not going to get in my way because they know where the power lies. And they're looking out for their own skin." The power lies in her chairman's support of her, she says.

Loretta says that she closely watched how the two women on her graduate school faculty behaved so that she could avoid some of the mistakes they made and become a better

politician. "It's tricky to let men understand your position without intimidating the hell out of them. You have to be assertive without being aggressive, all those types of dichotomies. I'm not very good at it. I've made a lot of enemies because I haven't been as soft-spoken--maybe that's not the right word--as political as I should have been. It's tough, but you have to do it. And it's not necessarily selling yourself short; it's just learning how to deal with people and getting things done in an efficient way," she says.

Loretta feels that she is more politically astute than the other female on her faculty, whom she calls "an excellent scientist, but a complainer. I've been really careful that when I ask my chairman for a favor, he knows that I really need it," she says.

Her self-esteem was shaken one semester when she got "creamed on student evaluations" because she spent more time writing a research grant than "holding their hands." The students perceived her "as being a nasty, mean person, and it really hurt," she says. "I had no idea the students viewed me so negatively," she adds.

So, she spoke with her chairman, "a terrific instructor," who told her, "'Look, Loretta, you cannot teach your students effectively unless they like you.' I finally realized that students do need their hands held at times," she says. Thus, she changed her style and her teaching evaluations improved.

Her advice to young women considering a career in science is to "stick with it, for one thing. That's a lot

of it, just sticking with it and getting the damn degree. And the other piece of advice, which I have followed and it's worked for us, is to keep your options open. Don't make decisions that are going to close doors unless you are absolutely certain that's what you want to do." In her case, instead of taking a higher-paying job after graduation that would have locked her into a specific type of research, Loretta chose a post-doc position that gave her "the opportunity to learn new things. And it's worked out for me," she says.

[NOTE: For brevity's sake, I have eliminated the case studies of three of the women. To receive transcripts of these case studies, please write to me at the address on the cover sheet. However, to help you understand my discussion at the end of this paper, I will give you a brief introduction to these women:

- Linda Jenkins, chemist--43 years old; originally felt that she must work as a technical person for someone who was "really brilliant"; now she feels that she must be "responsible for using [her] own talents"; was encouraged (by men) throughout graduate school but found no support system once she started working; was "released" from one job, interviewed for 1 1/2 years for another before not getting hired, and has struggled for tenure at her current job; is a social activist and derives support from a community of friends outside the university.

- Therese Verdeil, entomologist--62 years old; born into a wealthy French family; educated during World War II and received rigorous classical and scientific training; married a fellow French scientist and stayed home to raise children; moved to the United States and experienced discrimination "for the first time"; worked part- and full-time; now is in charge of her lab but still is called a research associate; does not have tenure.

- Meg Peterson, administrator--37 years old; trained as an animal physiologist and veterinarian; encouraged throughout graduate school; maintained a commuting household with her husband during graduate school and her first two years as a teacher; sought work near her husband; was the top choice for one job but wasn't offered it because the department chair refused to hire a woman; wound up as associate dean of the veterinary school that works with that department; had first child at 36 and shares child-rearing responsibilities with husband.

Review of Life Stresses and Coping Strategies

Although these four women have had different experiences being scientists, two items are relatively the same for all of them: family support for their career choice, and positive mentoring in graduate school. Women who choose nontraditional careers are more likely than women who choose traditionally female careers to have "enriched" family backgrounds, characterized by such things as parental encouragement of their career goals, high parental education and employment, and first-born or only-child status (Lemkau 1979; Heins, Hendricks, and Martindale, 1982; Wilson, Weikel, and Rose, 1982).

Each of the four women I interviewed said that her parents supported her desire to go to college, including financial support where possible. All of their fathers were professionals, had college degrees, and either worked in science or enjoyed science. Three of their mothers had college degrees; only Linda Jenkins' mother, in North Dakota, had stopped after eighth grade. Three were the "oldest" child in their families (including Linda, who considered herself an oldest child since her half-brother was 15 years her senior); Loretta, the geologist, was third of 13 children.

Another characteristic of many women who choose nontraditional careers is that they likely made that choice (although maybe not the specific job) before they got out of high school (Heins, Hendricks, and Martindale, 1982). All four women stated that they knew they wanted a career in science by the time they enrolled in college. Once there,

as chemist Linda Jenkins says, they heard through the grapevine that the only way to have a career in science was by getting a Ph.D., the route they all chose.

Being in graduate or professional school, because of the large investments of time, money, and energy needed to deal with this life change, is inherently a stressful experience (Valdez, 1982; Huebner, Royer, and Moore, 1981). And being a woman in a nontraditional career may cause even more stress (Gerdes, Sunday, and Imperatrice, 1981). However, part of the definition of stress is that a person must perceive something as being potentially harmful or threatening (Lazarus, 1966). Loretta Murphy, the geologist, and Meg Peterson, the administrator, say that they perceive their experience in graduate school as having been essentially different from that of many other women they knew because neither had been sexually or intellectually harrassed. With chemist Linda Jenkins, they agreed that they were lucky to have had major professors who encouraged them, told them they were brighter than most graduate students, and gave them the necessary support and autonomy to complete their degrees. Linda and Loretta reported that they had similar positive experiences on their post-docs. In other words, none said that being a woman in a male-dominated field presented any particular problems for them, until they started looking for tenure-track jobs.

Studies show that a person will raise her self-esteem if she receives favorable evaluations from an "informed" acquaintance (Lazarus, 1966: 62). However, if the person did not seek the evaluation, a positive change in self-esteem

will be greater, and a negative change will be less (Eagly and Whitehead III, 1972). In the case of these four women scientists, they all received unsolicited positive evaluations from their major professors or post-doc supervisors, which may have given them the emotional strength they needed to complete their Ph.D. Loretta Murphy, for example, says that when her advisor told her she was "brighter than most people on the face of the earth," she was surprised, pleased, and says she might not have finished her program if she had had a "major professor who came down on me really hard."

Having a positive self-image has been identified as a good way to cope with stress (Gerdes, Sunday, and Imperatrice, 1981; Cohen and Hoberman, 1983). Three of the scientists say that they were self-confident as graduate students and knew that they would complete their Ph.D.'s. Even chemist Linda Jenkins, who says that she doubted her decision to become a scientist "all the time," says that she "never doubted that at some level" she was talented. It just took her several more years, she says, until she had a "sense of self" that allowed her to see herself as an independent intellectual.

None of the four, however, anticipated the discrimination they encountered once they sought jobs at universities. As chemist Linda Jenkins says, "My mentoring was so good that it was a shock to find that there are a fair number of tight-assed people out there." Administrator Meg Peterson puts it this way: "I always dealt with encouragers, and I'm not sure that even they could have told me what [discrimin-

atory] attitudes existed out there, because they didn't feel that way towards women."

These scientists' strategies for coping with such attitudes on the job vary greatly, and so I will review each woman's situation separately.

Geologist Loretta Murphy says that she chose to work in a small research university rather than at high-powered institutions such as Stanford or MIT--places where she says bright people tend to go. Her self-evaluation is that she works just as hard as her colleagues there, but she perceives herself as having more control over what she does than they do.

The amount of control a person feels she has in a situation is positively related to how well she can cope with stress (Lazarus, 1966: 297; Nelson and Nelson, 1981:35; Laster, 1981: 17). Loretta's sense that she controls her own destiny helps her deal with conflicts on the job. For example, because she sees herself as associated with the source of power in her department--the department chair--she says she is not worried about getting tenure next year.

Challenges to her self-esteem from the senior faculty, who voted against her reappointment and her request to split her tenure position with her husband, resulted in her getting angry at them: "I've had absolutely no indication that they give a damn about me," she says. Instead of trying to win their favor, she says she ignores them and instead spends time with other junior faculty members.

However, the negative evaluations from her students early in her teaching career "really hurt," she says.

Instead of discounting the students' evaluations, Loretta sought advice from her chair as to what she might do. As a result, she says she changed her behavior and now is happy with the student evaluations.

Festinger's work on cognitive dissonance suggests that when a person experiences dissonance (i.e., when a belief or attitude differs from another, already-held belief or attitude), she or he experiences stress. To alleviate this stress, the person will use the coping strategy of trying to eliminate the dissonance by changing or reevaluating the beliefs or attitudes (Festinger, 1964: 155). This may explain why Loretta could identify the hazards of geological fieldwork for women in general (e.g., the threat of assault or rape), but still decide to pursue it herself.

When chemist Linda Jenkins wasn't reappointed as an assistant professor at the Ivy League school, she says her self-esteem was very low. She was forced to move from an office with windows on the fourth floor to a cubbyhole without windows in the basement, in addition to suffering the humiliation of losing her job. She says that she almost considered giving up science entirely. But instead of doing so, she says that her studies of the history of science "gave [her] a framework to understand the social context of what was happening to [her] so that [she] didn't take [her dismissal] so personally."

She used this same coping strategy of looking for reasons outside of herself to explain what happened when she didn't get a job, after being interviewed 1 1/2 years for it ("It was just some Byzantine kind of politics and was by no

means a rejection of me entirely," she says), and when she was rejected at first for tenure at her present job ("... part of what was happening was that the dean was getting at my chair through me because of the inadequate, incomplete manner in which my chair completed the paperwork for my tenure," she says).

Although she says that her self-esteem often had been shaky throughout her graduate school and work careers, she says she considers herself quite successful "in some ways" today. "I've published my share, there's an acceptable level of interest in what I do by my colleagues here and elsewhere, I have a certain amount of creativity and skill, and I have much to distract me from straight science these days," she says. By this latter comment, she was referring to her political involvement, which, she says, gives her no credibility within her department. On the other hand, her political and social involvement provides her with needed support and self-esteem, she adds.

Nelson and Nelson (1981: 36) say that an effective strategy for coping with work-related stress is to identify oneself as "part of a bigger whole" and to balance work with other activities in order to draw upon many skills and talents. Linda's advice to women considering a career in science is to seek support outside graduate school in order to be "less vulnerable to judgments that are designed to make you conform." She seems to have followed her own advice.

Linda says that she doesn't see herself as having any personal power in her department. "However, I don't seek

power on any plane. I'm more a person who works with others and who distrusts personal power over others," she adds. She says that by being in a "hard science," she often is given the authority to comment on what may be done to correct the problems caused by the negative impact of science on society. She says that she plans to use this "power" to help look for solutions to our survival.

And like some women scientists who become weary of the struggles they must contend with simply because they were born female, Linda says that now that she's tenured, she will shift some of her energy to writing feminist critiques of science and to trying to make science more amenable to women, a strategy often used by women who have struggled to make it as a scientist (Gornick, 1983: 146-147).

Entomologist Therese Verdeil says that she has been struggling all her work career to convince men that she is a competent scientist, even though she says she is a world authority on control of the spruce budworm. As a research associate professor, she suffers the fate that many women in science have faced: she has been relegated to the fringes of the scientific world despite her qualifications to be in the center of the action (Gornick, 1983; Rossiter, 1982).

Like Linda Jenkins, Therese looks for explanations outside herself to explain conflicts on the job. The problems she faces as a woman in science--and that most women in science face--she says are caused by men who don't accept women as colleagues and who fear that women might take power away from them. For example, although she says that a few of her male colleagues support her when she talks

to them individually, they desert her at faculty meetings in favor of the "male mutual admiration society," as she describes it. Part of the reason her department chair won't promote her, she says, is that he is "afraid of me because I am a woman." And even the fact that she feels she doesn't "have power over the secretaries" is a result, she says, of the fact that they are frustrated with the male faculty members and take their frustrations out on her because she's powerless and at the bottom of the academic totem pole.

Therese seems to have adopted the "idealistic, liberal-to-radical, and often confrontational strategy of demanding that society reject all stereotypes and work for the feminist goal of full equality" (Rossiter, 1982: xvii). For example, when she discusses her strategy for dealing with the fact that she hasn't been promoted, Therese says that she confronts the dean and says, "Hey, you have to do this for me. That's the way I fight," she adds.

A female colleague who knows of Therese's working situation, says,"Therese would be someone's technician today if she wasn't as aggressive as she has been. She understood early on that she had to fight or she'd get no recognition at all. Given the cast of characters in her department, she's done remarkably well for herself."

Therese's self-esteem has been pummeled over the years, and yet she doggedly maintains that she is an intelligent woman and a good scientist. She is proud of the fact that she has a "very humanistic, Leonardi DaVinci-type background," as she describes it. And she is proud that she is a woman of action who hasn't been held down by men, and who

has taken responsibility even when it hasn't been offered to her--qualities that usually aren't associated with women, she says. In fact, she says that she doesn't see herself as being like other women; "I'm myself," she explains.

Therese nonetheless seeks support for being a women in science from other women in science. For example, she is on a national women's equity committee and is very involved with her local chapter of the American Association of University Women and with a campus women-in-science group. Like chemist Linda Jenkins, Therese is shifting some of her energy to women's issues rather than science. She, too, wants to open up science for more women.

Her advice to women who are considering a career in science reflects the advice she wishes she had been given years ago: to enter academia through what she calls the front door, and not to get stuck in an untenured research associate professorship.

Meg Peterson says that she is happy and successful as an administrator even though she "would have been very happy being the old-professor-type" if she could have had a career as a scientist. Her approach to not being able to stay in science was, in her words, to choose to switch careers. And, being an associate dean of a science department is a high-status job, one at which she feels she can be challenged and be successful, she says. However, she is still a scientist, she points out.

Like Therese Verdeil, Meg says that she believes that some men are threatened by women whom they perceive as being more qualified and more intelligent than they. One such man was

the chair of the department of animal sciences who chose to give up a position, she says, rather than hire her as the second women in his department. "He's very short-sighted and retrenches into his own specialty," she says. "The selection committee has chosen me for the position, which was a good indication of my worth and appropriateness for this position," she adds. Thus, she maintained her self-esteem by devaluating the source of her "rejection" and focusing instead on other external, positive evaluations.

But unlike Therese, Meg had positive experiences with male mentors and says that she works very well with the male dean of the veterinary school. In fact, she identifies her style of operating as being the same as his: "We deal with people openly and honestly. There are no hidden agendas, and so we are trusted by the people we deal with," she says. She sees herself as having lots of authority and autonomy in her present position. And she reiterates that she is happy with her life and considers herself to be successful.

These four women, then, have used different coping strategies (e.g., maintaining self-esteem by reevaluating criticism or the source of criticism, choosing different options, demanding equality, seeking support outside of work, and gaining a sense of control over their destiny) to deal with stresses at work.

One remaining source of stress for women in science is fulfilling the multiple roles of scientist, wife, and mother. The major stresses identified for women in dual-career marriages are work overload, identity crises, having to assume different roles at different times in the rela-

tionship, discrepencies between personal norms and societal norms, and how to maintain social networks (Bebbington, 1973). Matters are even worse when both partners in the marriage are looking for jobs in the same field, which happened to be the case for the three married women I interviewed (Pingree, Butler, Paisley, and Hawkins, 1978). Linda Jenkins, the chemist, says that she is choosing not to be in a relationship with one person now because she feels a greater commitment to a larger community.

Although they haven't made identical life choices, Loretta Murphy, the geologist, and Meg Peterson, the administrator, have chosen many similar strategies for coping with the stresses of a dual-career marriage. Both, for example, say that they chose not to have children until they were settled in jobs that they liked and in which they felt they were succeeding. Loretta was 31 and Meg was 36 when they became mothers. Loretta and Meg say that they value being with their husbands and so chose to find jobs in the same geographical areas they were in. In Loretta's case, her husband-to-be followed her to her job, although they lived 200 miles apart for a year while both had post-docs. In Meg's case, she and her husband lived 800 miles apart during her last year in graduate school, and then 500 miles apart when she taught for two years at a small liberal arts school. She points out that she chose to leave her teaching job not only because she valued her relationship with her husband, but also because she thought the prospects were good for her finding a position in science near his work.

Both Loretta and Meg brought their infant daughters to work with them at first and report that the people in their departments seemed pleased and amused to have a baby around, "as long as she is quiet," Loretta adds. Meg sought help with child care from a "grandmotherly" woman near work, and Loretta is still looking for a suitable caregiver before she must begin her summer fieldwork.

Loretta and Meg also report that their husbands help care for the daughters and help with household chores. However, both Loretta and Meg say that they willingly accepted the fact that they would have to spend more time than their husbands--at first--with their daughters, but that they expect to eventually share child-rearing responsibilities equally with their husbands.

When faced with a career crisis, Meg chose to leave science and enter administration while Loretta chose to try to share her job with her husband. To deal with concerns of nepotism, Loretta and her husband-to-be drew up a detailed contract with the university, outlining what would happen if she would get tenure and her husband would not, if she would get a sabbatical and he would not, if they should no longer be a couple, and so forth. Because her teaching evaluations were good and she finally got a big research grant, Loretta says that she and her husband, who also had research grants and good teaching evaluations, "finally were in a bargaining position" with the university. Their strategy was to show the university that it was to its advantage to have the services of two good scientists and not just one, she says (Pingree, Butler, Paisley, and Hawkins, 1978: 29).

Meg says that she feels it is important to maintain a support system outside of her marriage while Loretta says that she has little time for friendships right now outside of work and her marriage.

Therese Verdeil reports different strategies for coping with the demands of a dual-career marriage, which may reflect the fact that she is about 30 years older than Meg and Loretta and that she is from a wealthy European family. For example, although she says it was expected that women in her family would go to college and even get Ph.D.'s, it was equally likely, she says, that they would then stay home and be "ladies," as her mother had done.

Therese chose not to start a career in France when her children were first born because, she says, her husband's job might have required that at any point they would have to move to the United States. Rather than have to interrupt her career, she chose not to work full-time. Instead, she tutored individuals in science and did social work "so that [she] wouldn't feel like a parasite," she says.

When Therese and her family moved permanently to the United States, she worked part-time so that she could be home with her youngest daughter. "Taking time off to raise a family is a problem that women in science have," she says.

The two younger scientists--Loretta and Meg--saw themselves as having more options (delaying having children, sharing child-rearing responsibilities with a spouse, not staying home with children) than did Therese. A large share of these differences may have to do with the fact that "times have changed" in societal expectations for women.

Conclusions

The four women I interviewed are survivors in that they still have jobs in academia, where they all say they prefer to work. However, Meg Peterson now administers a science department instead of doing research and Therese Verdeil remains on the periphery of her department as a research associate professor without tenure.

All say that they love science and are committed to doing something with their talents, even if it may not be as a scientist. Chemist Linda Jenkins, for example, says that she "can't imagine" she'll still be in science when she retires; however, she plans to use her authority as someone in a "hard" science to help find solutions to societal problems caused by the misuse of science and technology.

All four consider themselves to be feminists--or, as Loretta Murphy says, "I support equal opportunities and equal rights for women; you know, all that stuff." Each is willing to speak her mind, Therese perhaps more vociferously than the others and Linda perhaps more quietly than the others.

They all had "enriched" family backgrounds and all received positive mentoring and support throughout graduate school, which they say helped build their self-esteem. However, they were unprepared for the stresses and discrimination they would experience on the job. Their coping strategies varied from reevaluating the source of negative criticism, seeking support outside work, maintaining a positive self-image, gaining a sense of control in their

personal lives, and demanding recognition and equality for women.

Loretta and Meg coped with the stress of being in a dual-career marriage by delaying having children, seeing their own work as being as important as their husband's, and seeking help with child care. Therese, who is about 30 years their senior, chose the more traditional route of interrupting her career to take care of her children.

It would appear that each of these women, to a greater or lesser degree, has made it to what Carol Gilligan defines as the final stage of women's moral development--that of equating responsibility to self with responsibility to others, of claiming power to make choices, and of accepting the responsibility for those choices (1982: 74). Chemist Linda Jenkins, for example, has struggled to value herself as much as she values the need to serve others. Also, she doesn't want power <u>over</u> anyone; instead, having power means being able to use her voice to question authority and influence decisions. Entomologist Therese Verdeil wants power in order to control what happens to her and to her environment. She has a strong sense of her responsibilities to the world around her, but she also focuses heavily on rights, a quality often associated with men (Gilligan, 1982: 19,22).

When it comes to dealing with conflicts on the job, chemist Linda Jenkins, geologist Loretta Murphy, and administrator Meg Peterson tend to choose a similar coping strategy. Although they may disagree with men in positions of authority, they do so "respectfully" by keeping in mind the

feelings and needs of those men in order to realize their own needs (Miller, 1976: 133). Entomologist Therese Verdeil, on the other hand, chooses to confront her dean and department chair with her demands for equal treatment. Her forthrightness has been described by other women at her university either as justifiable assertiveness in the face of relentless descrimination or as ineffective aggressiveness that alienates men.

Speculations

Perhaps Therese might have more support from her colleagues, chair, and dean if she were a bit more diplomatic; pop psychology would say that the best way to get authority figures to do what you want them to do is to convince them, gently but firmly, that what you want is really what they want, too (Fisher and Ury, 1983). However, after 20 years of working with the men in her college, the pattern of interaction probably is pretty well entrenched. Actual changes in attitude or behavior at this stage by either side probably would not be perceived as any change at all.

This difference in negotiative strategy between Therese and the other women probably results in part from the fact that she is about 30 years older than they are and is from a wealthy, upper class European family as opposed to middle class American families. Therese, it appears, has been more strongly influenced by traditional expectations of a woman's proper role, even though she has diligently challenged that stereotype all her life.

The other three women were in college or just beginning their careers in the heyday of the women's movement during the 1970's, which emphasized women's development and self-worth. It was during this time that chemist Linda Jenkins says that she began to respect her intellect and finally discovered that "people who seemed to have it all together, don't."

Another change brought about by the women's movement, and by economic necessity, is the fact that it has become more legitimate for women to have careers, and to be successful at them. Women have actively sought the higher-status and higher-paying jobs usually held by men, and many of them choose nontraditional careers, such as being a scientist. The question remains, however, whether such women will be able to move beyond the entry-level positions to become senior scientists or tenured faculty (Gornick, 1983). From my study, it appears that some women, at least, are able to receive tenure, but not without a struggle. Much has yet to be done to make academic science a welcome environment for women.

Another development influenced by the women's movement is the opportunity to redefine what being a scientist really means; a person need not be in a lab 90 hours a week and eschew all personal responsibilities in order to make a meaningful contribution to science (Gornick, 1983: 155). Geologist Loretta Murphy, for example, shares her tenure-track teaching position with her husband so that she now has more time to do research and raise a family. In describing what happened when she and her husband-to-be were negotia-

ting for the split position, she says, "I am the one who gave something up. It was a reversal of the usual situation because it was the man [her husband] who tried to sneak in the backdoor [of the department]." It would have been even more of a reversal, however, if her husband had been the one to "give something up." As it is, the department didn't lose a daughter; it gained another son.

Although my sample undeniably is small, I would speculate that the coping patterns I identified are common to women from similar "enriched," supportive backgrounds and from similar generations. A nagging question, however, is, what coping strategies do women use who have faced discrimination or discouragement most of their lives? Are they able to overcome this long-standing pressure and enter nontraditional careers? How do men cope with similar job and family stresses?

Perhaps someday life for girls and women will not be so different from that for boys and men so that questions about coping strategies will change. But more likely, for the foreseeable future, women's stressful situations will remain different from those of men. Knowledge of how to cope effectively with stress can provide women with the power to implement change in their lives, and to achieve success and happiness.

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